



THE DELAWARE AND HUDSON RAILROAD BULLETIN

*The
D&H*

SEPTEMBER 15, 1930



Unsubdued



*I have hoped, I have planned, I have striven,
To the will I have added the deed;
The best that was in me I've given,
I have prayed but the gods would not heed.*

*I have dared and reached only disaster,
I have battled and broken my lance;
I am bruised by a pitiless master
That the weak and the timid call Chance.*

*I am old, I am bent, I am cheated,
Of all that Youth urged me to win;
But name me not with the defeated,
Tomorrow again, I begin.*

—S. E. KISER.





The
DELAWARE AND HUDSON RAILROAD

CORPORATION

BULLETIN



Vol. 10

Albany, N. Y., September 15, 1930

No. 18

Recalls Legend of Revolution

Veteran's Grandfather Served In Regiment Losing Six Men At "Post of the Doomed"

ONE of the dramatic incidents in the Revolutionary War centered around what came to be known as the "post of the doomed." It happened that one night a sentry, standing guard near a camp just outside of what is now the city of Saratoga Springs, was killed and scalped. His body was found the following morning, his muzzle-loader still clasped firmly in his hands. No one had heard any noise, and there was no clue to assist in reconstructing the slaying other than the obvious fact that it had been done by an Indian because of the scalping. There were no signs to indicate that there had been a struggle; the sentry probably had not been aware of any danger.

For six consecutive nights a sentry was killed. By that time this particular post had been named the "post of the doomed". Everyone dreaded being stationed there, knowing full well he probably would never return to camp alive.

An old frontiersman was assigned to the post on the seventh night. Arriving at his post, the soldier took his long ram-rod and stuck it in the ground. Then, removing his coat and hat, he arranged them to that in the murky darkness it looked a perfect counterpart of a sentry on duty.

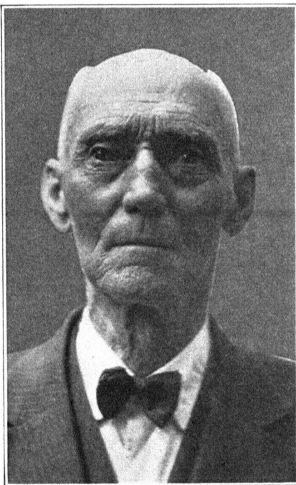
He then quietly retired to a nearby clump of bushes to await developments. Shortly before midnight he heard a rustling in the forest—to his trained ears it was the sound of advancing footsteps. As the phantom sniper approached the

clearing the frontiersman was able to make out the form of an Indian. Slowly and noiselessly he crept up on what he supposed was a sentry. Just as he raised his tomahawk to deliver the death blow, the frontiersman felled him with a bullet through the head. The next morning he carried the dead Indian into camp.

One of the members of that company of American soldiers was the great grandfather of ANDREW BENTLEY, pensioned Crossing Watchman, a veteran with sixty years service with The Delaware and Hudson Company to his credit, at present residing at 138 Church Street, Saratoga Springs, N. Y. This patriot had come to America with two brothers several

years before. With the outbreak of the war the two brothers returned to England to join the British Army. Although they fought on opposite sides they never faced one another on the battlefield and none of them was killed.

MR. BENTLEY's great grandfather, however, was



ANDREW BENTLEY

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seriously injured and left for dead on the battlefield at Saratoga. After the engagement was over a young woman noticed that he was alive, and took him to her home. Later, when he had recovered from the effects of his wound, they were married. Years afterward this old veteran of the Revolution proudly exhibited two muzzle-loaders which he had saved from the war. He also had a number of powder horns, sabres, and other relics.

ANDREW BENTLEY was born at Greenfield, about seven miles from Saratoga Springs, November 11, 1847. His mother died when he was eight, but despite the fact that he was forced to go to work shortly thereafter, he managed to get a common or grammar school education.

At the outbreak of the Civil War the 25th United States Cavalry was stationed at a camp where the Saratoga race track now stands. Seeing a chance to get away from home and see the world, young ANDREW, then only fourteen, attempted to enlist. He went down to the Adelphi Hotel where the recruiting officer was stationed and filled out the papers. When the officer looked him over he found him in perfect physical condition although evidently much too young for service in the army.

He told ANDREW that he only had one lung and the Confederates would shoot him sure as he was

alive. Undismayed by their jibes, the lad told them that he could shoot too. If he didn't believe it to let him have a gun, step outside, and he would show them all how to shoot. Evidently they were impressed by the young man's nerve for they permitted him to join the army.

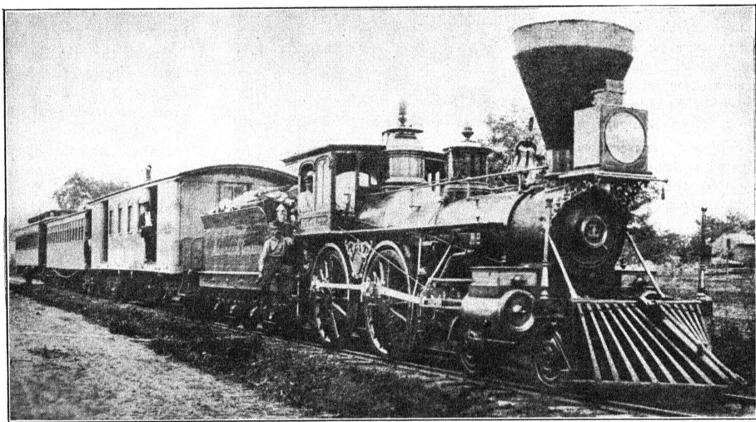
When his older brother, who was also a member of the regiment, heard that he had enlisted, he immediately wrote their father asking him to take ANDREW home. His uncle, who knew the colonel of the regiment, came and soon had him mustered out. Thus ended ANDREW's enlistment in the Union Army. The brother was finally sent to the front where he was captured and confined in a prison for a long time. He was later exchanged for another prisoner and came home.

MR. BENTLEY's railroading experience began in 1869 when he was employed on the Adirondack Railway. During the winter months he worked as a brakeman; during the rush months in the summer time he took care of the baggage car work while another man was added to the crew to act as brakeman.

At that time a bell cord was literally a bell cord. In the cab there was a big gong to which was attached a rope running through to the rear of the train. MR. BENTLEY was on the Adirondack eleven years when he was transferred to the

(Continued on page 286)

Old Adirondack Railway Passenger Train



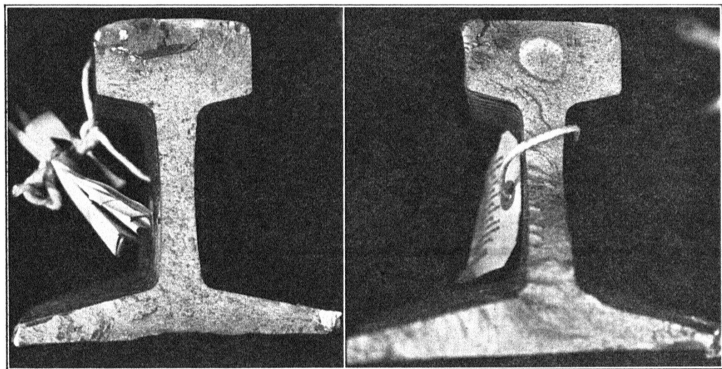
Left to Right: Conductor Sidney Crane, Baggageman A. Bentley, Fireman C. C. Sprut, and Engineer Edward Humphrey.

"Getting The Breaks"

Sperry Detector Cars Only Known Means of Anticipating Occurrence of Broken Rails Which Result From Internal Transverse Fissures Called "Rail Cancer"

HOW to detect the presence of an invisible menace which in less than a score of years has cost the lives of a hundred persons and has led to the injury of nearly three times that number has been, until recently, one of the greatest problems confronting the managements of the railroads of this country. In a manner characteristic of the way in which they have overcome various seemingly insurmountable obstacles since their pioneer days, the carriers have now reached what promises to be at least a partial solution of their problem.

process, upon the tremendous weights of modern motive power and rolling stock and upon high speed operation or a combination of the above. Size, age, and location of rails seem to have no bearing on the formation of these dangerous defects. They are found in old rails and new, heavy and light rails alike. Whatever the cause may be or the means to prevent the occurrence of transverse fissures or other internal flaws in rails, the detection and immediate replacement of all such "diseased" rails is a matter of great importance.



The Menace: Transverse (Right) and Horizontal (Left) Fissures in Center of Rail Heads

The menace is the internal transverse fissure in track rails—the only method of locating it, the Sperry detector cars, several of which have been operated recently over Delaware and Hudson lines.

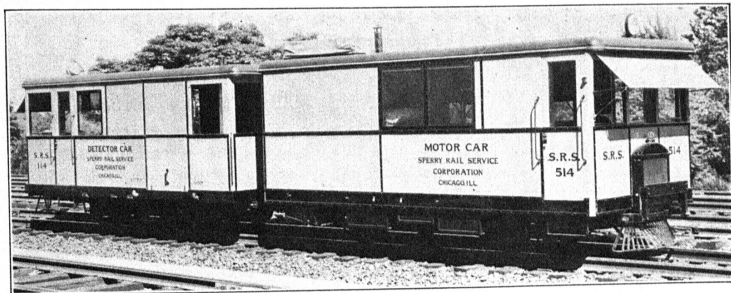
A wreck on the Lehigh Valley Railroad at Manchester, N. Y., in 1911, costing the lives of 29 persons and causing the injury of 62 others, was the first disaster attributed to the transverse fissure, which was unknown prior to that time.

What causes these fissures is as little known today as it was 20 years ago. Various theories blame their presence on the rail manufacturing

As the defects are invisible the track walker is powerless to detect them. Science, therefore, in the person of the late Elmer A. Sperry, noted engineer and inventor, was called upon by the American Railway Association to find a means of locating these hidden flaws.

The Sperry detector car was his answer to the demand. Despite the shortcomings of the original car, so successful was its operation that all the railroads of the country clamored for its services. As a result there are now a dozen of these cars in operation, upwards of 10,000 miles of track having already been inspected.

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Double Unit Detector Car

On the Delaware and Hudson lines the first inspection trip of a detector car started from Wilkes-Barre in October, 1929. As the result of the work done by the car on the Pennsylvania Division, it was then operated over the entire main line from Wilkes-Barre and Binghamton to Rouses Point and also over the Lake George Branch, an average of about one rail per mile of track being found to contain transverse fissures or other flaws necessitating removal. In some cases a single rail was found to contain several fissures.

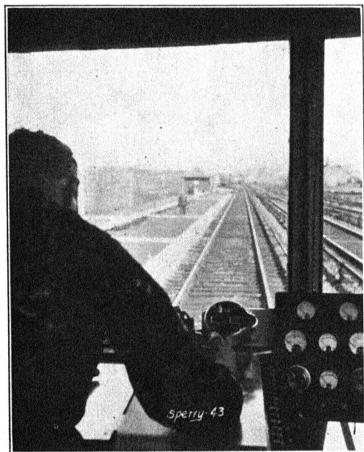
With the completion of the testing, on Decem-

ber 28, 1929, it was known that all defective rails had been located. The question remaining was, "How soon will others develop?" To check this another car has just completed a second inspection of the same tracks which were covered last year. As this is being written the results of this year's inspection are as yet not announced but it is known that the number of defective rails found was much less than on last year's inspection.

The detector outfit consists of two cars. The first supplies the motive power for both by means of a gasoline engine and mechanical transmission, operating much like an automobile. It also contains living quarters, berths, lockers, etc., for a crew of four. The detector car proper is divided into an engine room and an operating compartment. In the engine room is a powerful four-cylinder gasoline motor direct-connected to a generator which supplies the current for fissure detection. The above equipment is sometimes combined in a single unit, one of which was used for a time on Delaware and Hudson lines last year.

In order to get a clear idea of the operation of the car, imagine that you are in the operating compartment for a moment.

The operator in charge sits at a small metal desk facing the rear of the car so that he can watch the track which has just been passed over. Signs request silence in the compartment, and with reason! The motors are humming and the test is about to start. Two pushes of the button on the instrument board signal "Go Ahead" and the car moves forward at a speed of five miles an hour. As it starts a narrow ribbon of paper slips across the operator's desk, the end disappearing on a reel underneath. A row of eight little pens is adjusted to trace eight parallel lines as the paper passes continuously beneath them. The



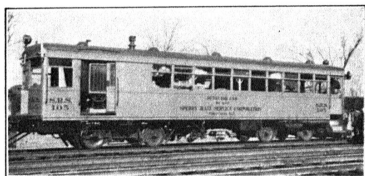
Operator At Desk

two lines in the center are red while the three on each side of them are black. A switch on the operator's desk is closed and there is a "click-click-clack-clack" as each rail joint is passed over, the right or left hand lines registering jogs as the pens vibrate from side to side. At the same time there are mysterious clickings and blasts of compressed air from the exhaust ports of the machinery.

We pass a signal and the operator records its location on the tape by means of a rubber stamp. A highway crossing and signal tower are similarly indicated.

Suddenly the two pens at the extreme right "wiggle" violently—the operator, who is constantly watching both rails and the chart, selects another stamp, some two dozen of which are arranged in a row before him, and marks "burn" on the chart opposite the deflection in the lines. You look at the rail and observe the spot where a locomotive has spun its drivers in getting under way after stopping at the home signal near the tower.

Other indications are recorded by the pens and designated as "burn" or "flow" if the rail head shows that the metal has begun to "mushroom" out under the pressure of passing trains. All of this is occurring much faster than it can be told. Five miles an hour seems slow but it keeps the operator busy stamping the nature of indicated defects and the various landmarks which will be



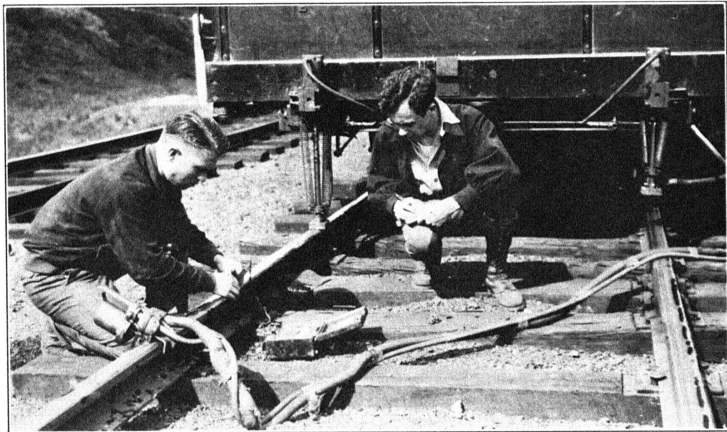
Single Unit Car

used to show the location of a defective rail if one is found.

It is beginning to be a monotonous process. Suddenly the car stops in response to the operator's signal and is moved slowly backward for two or three rail lengths. An indication appears on the chart but the rail shows no sign of burn or flow. There is a spot marked with a splash of white paint on the side of the rail, however. This the car does automatically at the moment the pens are jogged.

A re-check is then made, the car proceeding over the same rail at its usual speed. Again the pens twitch convulsively. The car is stopped and the crew jumps out and starts to rig up for a "hand test". Slowly and carefully the testing device is moved back and forth along the rail at the spot indicated by the paint. The needle of

(Continued on page 286)



Making a "Hand Test"

Delaware and Hudson's Railroad's "B"

By W. J. COUGHTRY, Recorder

TOO often, indeed, have the efforts of mankind, vital to another generation, passed into the annals of forgetfulness, void of a remaining vestige to tell of the human endeavor or the objective striven for and attained. New generations come, pause amid the same surroundings, and pass on, little knowing the hopes, failures and conquests of those who struggled there.

This it may be said is particularly true in the great forward march in American railway development. Few there are of us who pause to think of the remarkable pioneering record of our own company in this wonderful achievement. In the track of The Delaware and Hudson Company the first rail imported from England was laid. On its railroad the first steam locomotive service was performed. On its railroad the movement of large freight tonnage, in proportion to mileage, commenced. For the movement of that freight the company published the first American freight tariff. And for the government of the movement of that traffic the company also issued the first definite rules and regulations for conducting transportation put in force on an American railroad.

These rules and regulations, devised by John B. Jervis, Chief Engineer, are exceedingly interesting because of their wide variance from those in general use today. The words "locomotive" and "car" are conspicuous by their absence—the former because power from the stationary engines furnished the propelling force on the planes and horses on the intervening levels. The vehicles were called "wagons," the word car having not yet come into use. Another conspicuous variation from the present-day rules is their extension beyond the employes of the company in prescribing the method of construction, size, capacity, braking apparatus and speed of the "wagons" owned and operated by individuals, a practice then prevailing.

Although the industrial sidetrack and the sidetrack agreement are generally believed to be of much more recent origin, these rules clearly show them to be a century old, and that they first came into use on the Delaware and Hudson. Provision was made, as will be noted in "Title 2nd", for the construction and "constant maintenance" by land owners and others engaged in transportation of branches and sideways with suitable conven-

iences for passing to and from the main track. All individual "wagon" operators were also required to sign an agreement binding them to conform to the regulations necessary for the preservation and uninterrupted use of the company's works.

These rules and regulations, as adopted by the Board of Managers on September 18, 1830, follow:

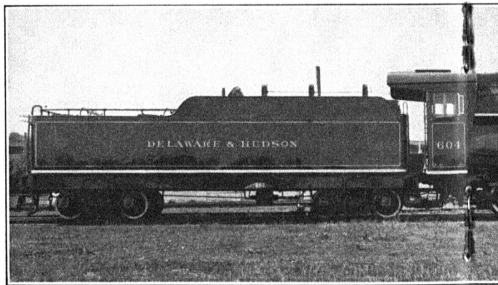
"Regulations to be observed in conducting the business of transportation on the Delaware and Hudson Canal Company's Rail Road:

CONSTRUCTION AND FITTING OF THE WAGONS

Title 1st:

In reference to the wagons—the wheels, axles and chains and the spaces between the wheels, both in a transverse and longitudinal direction with the road, to be constructed on the most approved plan that may be adopted for the use of the railroad by the Engineer of the Delaware and Hudson Canal Company. The frame of the wagon to be made perfectly true and with sufficient firmness to maintain its accuracy, and afford the greatest practicable ease in travelling on the road. The extreme width to the outside of wagon-box or loading, shall not at any point exceed two and a half feet from the center of the wagon, and this must be so arranged and constructed, as not to interfere with the regular and efficient operations of the friction brake. The extreme length of wagon or its load must not

In the New York — Montreal



"Book of Rules" the First In America

exceed fifteen feet, and the ends of the sills properly fitted to prevent other parts of the box or the loading from striking other wagons, when connected in a train, to have chains of suitable lengths to admit of not less than four nor more than six inches play between the wagons, friction brakes with levers to check or stop the motion of the wagons to be attached to each, and to be constructed on the most approved plan adopted by the Engineer of the Delaware and Hudson Canal Company for the use of this road. The wagons and their connections to be made in every respect in a substantial and workmanlike manner, and to be such as shall be approved of the aforesaid Engineer as properly adapted to the business of the road.

BRANCHES AND SIDEWAYS

Title 2nd:

To avoid interfering with the business of the road, branches and sideways may be constructed with suitable conveniences for passing to and from the main line by any owner of land or other person along the said railroad, provided, the location plan and workmanship and its regular and constant maintenance shall be approved by the said Engineer, and such as will not in any respect interfere with the regular business of the road.

RULES TO BE OBSERVED IN TRANSPORTATION

Title 3rd:

1st. The weight of wagon and its load shall not in any case exceed three and a half tons;

2nd. No wagon shall be allowed to stand on the road at any point or at any time that would interfere with the regular operations of the business of the road;

3rd. The wagons in all cases to move in the order of arrangement that may be adopted from time to time by the Engineer of the company for passing the inclined planes and other passing places;

4th. No wagon to travel at a rate exceeding six miles per hour;

5th. In the event of an accident by which any wagon or wagons may be injured or otherwise stopped or prevented from traveling up to the business arrangements of the road so as to prevent other wagons from moving agreeably to such arrangements, it shall be the duty of the owner or manager of such wagon or wagons to remove the same forthwith, in such a manner as to leave the road unobstructed, and in case of refusal to do so the manager of any wagon that may be detained in consequence thereof, or any overseer in the employment of the Delaware and Hudson Canal Company on said road, may proceed forthwith to remove said wagon or wagons that may obstruct the progress of business on the railroad as aforesaid;

6th. Any person engaging in transportation on said railroad shall at all times provide, to be moved in one train together, as many wagons as may be required in the arrangements of business on said road, to be connected in one train;

7th. Persons engaged in conducting the business of transportation shall at all times guard their wagons from moving with force against other wagons;

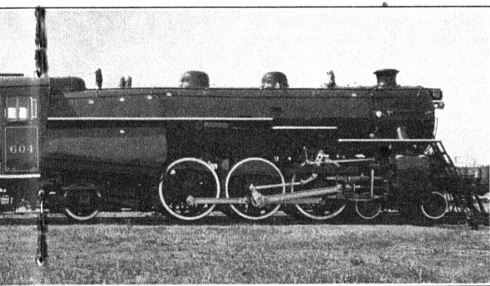
8th. The owners of wagons must have them properly oiled at each and every place designated by the Engineer of the Company for oiling wagons.

THE COAL BUSINESS

Title 4th:

Each person engaged in transporting coal will provide such branches as may be necessary to their respective places of deposit, and remove their wagons promptly to such places of deposit, so as to avoid interruption to the business of others.

- Montreal Limited Service



The

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CORPORATION
BULLETIN

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ALBANY, N. Y.

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No. 18

Discouraged?

IN the Street of Life, walking in the darkness of the shadows, hungry old Satan was out hunting with his dogs, the little imps of human weakness. A man came walking down the street. Satan said to a little imp, scowling with a bitter face: "Go, get him for me!"

Quickly the imp crossed the street, silently and lightly hopped on the man's shoulder. In his ear, he whispered, "You are discouraged."

"No," said the man, "I am not discouraged."

"You are discouraged."

This time the man replied, "I do not think I am."

Louder and more decidedly the little imp repeated, "I tell you, you are discouraged."

The man dropped his head, and murmured: "Well, I suppose I am."

The imp, darting back to Satan, said, proudly: "I got him; he is discouraged."

Another man passed. Again old Satan said: "Get him for me!"

The proud little demon of discouragement repeated his tactics. The first time he said, "You are discouraged," the man replied, emphatically, "No!" The second time the man replied, "I tell you I am not discouraged!" The third time, he said, "You lie! I am NOT discouraged!" And he walked down the street, his head erect, going toward the light.

The imp of discouragement returned to his master, crestfallen. "I couldn't get him," he reported. "Three times I told him he was discouraged. The third time he called me a liar, and that discouraged me!"—*C. & O. Magazine.*

Absent Treatment

WE all should know, for it has been repeated so many times, that all we have to sell to the public is good transportation service, and it should be just as obvious that unless this service is given willingly and courteously our task is less than half done.

Those men who, out on the firing line, are working hard to secure new business, and in these days that means new friends, expect all the rest of us to support their efforts. Our solicitors promise good transportation service, they don't make any unreasonable promises, and when they make new friends and secure new business it is our duty to carry on.

To make good road time isn't everything; every shipper expects that. The big thing after making friends is keeping friends. Here is where we all have our part to perform.

In their philosophy of life the Chinese have given us many worth while maxims, and one of these, many thousand years old, yet still true, is—"The hireling is gained by money; the true friend by an obliging behavior." So let us each cultivate and practice an obliging behavior.

Rarely are we rude or indifferent to a patron when transacting business personally; it is our absent conduct that needs our close and careful scrutiny. Over the telephone a friend loses personality and becomes merely a voice. This loss of personality is true at each end of a telephone conversation and imposes an added obligation to us on the railroad end to be at all times pleasant and courteous.

In our efforts to keep friends, very particular attention must be constantly given to our correspondence. A letter may be nothing but a sheet of paper with some typewritten words on it, or it may be a friendly message full of personality and the desire to co-operate and serve.

It is easy to make good deliveries; we have the equipment and organization to do that. It is easy to be courteous and friendly when meeting our patron face to face; but to keep our telephone conversations and our written communications friendly, courteous and helpful must be our constant and daily effort, for to us here on the job is the double task of providing good transportation service and keeping friends.—*Railway Life.*

The human race is divided into two classes—those who go ahead and do something, and those who sit and inquire why it was not done the other way.—*OLIVER WENDELL HOLMES.*

Practical Engineering Experience Gained At

1930 Student Camp

*Forty-five Student Engineers, Representing Eight Colleges, Complete Survey
In Vicinity of Saratoga Springs In Two and One Half Months*

MUCH has been written of the need of the railroads for technically trained men—but very little has been done about it as far as giving students an opportunity to view the practical side of railroading in a broad way is concerned. It was with this thought in mind that the Delaware and Hudson management eight years ago developed the idea of the Student Summer Camp operated by the Maintenance of Way Department, in which young engineers could gain practical experience, under salary, and, at the same time, accomplish useful work which could not conveniently be assigned to the regular engineering force. The work of the students was originally confined to actual track maintenance, solely for purposes of instruction, but there has been a gradual transition as the result of which the men now devote their time entirely to engineering work.

During the past five years complete surveys have been made of the main line of the Champlain Division from Whitehall to Rouses Point, with the topography of adjacent territory; the Saratoga Division from near Comstock to Lake Station, including all of the village of Whitehall west of the Barge Canal; a study of possible grade reduction on Gansevoort Hill; and a realignment of the Adirondack Branch between Hadley and Thurman.

This summer the work outlined called for a general map of the vicinity of Saratoga Springs between mile posts 34 and 44 and westerly to mile post 40 on the Adirondack Branch. The completed project covered 11.4 miles of track survey,

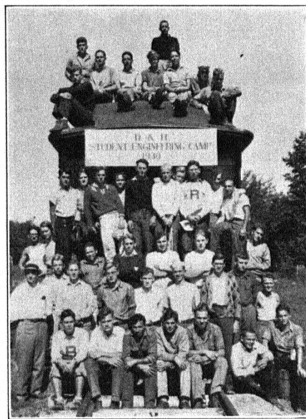
50 miles of auxiliary survey lines, 27.4 miles of street survey of Saratoga Springs, and 71 miles of bench mark and profile leveling with checks. The topography in connection with the work involved 2,600 stations or 464 miles of line. In addition, a map drawn to a scale of 100 feet to 1 inch was prepared and progressed within one or two days of the field work.

All transit work was by the azimuth method, with azimuth checked from solar observations, daily if possible. Profiles were run from bench marks established by a series of check levels from sea-level datum. Topography was taken by actual location of contours of fixed elevation in the field. All plotting was by the coordinate method, from computations by latitudes and departures. In other words, the survey was conducted in accordance with the most modern instruction of the various engineering colleges.

Such an extensive survey and map preparation as this could only be made with an engineering corps of this

size in the limited time of two and one-half months which is available for the use of the students.

The site selected for this year's activities was about a quarter of a mile from the station at Greenfield, N. Y., on the Adirondack Branch, at an elevation of 600 feet above sea level. Here the eight cars comprising the camp were set off in a picturesque spot on a siding which runs along the edge of a small lake, ideal for bathing, which provided pleasant recreation after the day's work.





Computing and Drafting Car

For the housing of the fifty men at the camp there were eight cars. First in line was the auxiliary car which carried huge water storage tanks and an electric generating outfit for supplying current to the lights and fans with which all cars were equipped. Next came the kitchen car where CHEF "JIMMIE" GREEN prepared the meals for the hungry mouths.

Meals were served in the dining car, which was used for eating purposes only. Adjoining this were three sleeping cars in each of which were quartered 16 men. Double-decked steel cots, steel lockers, and shower baths with hot and cold water were provided in addition to electric lights, fans, and an Arcola heating system.

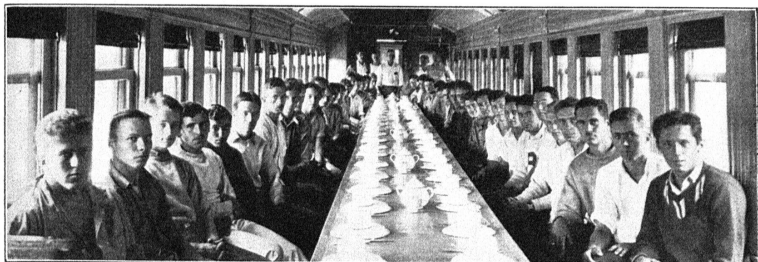
Next in line to the sleeping cars was a combination office and instrument car, one end of which was fitted with racks to hold the levels, transits, axes, and other "sinews of war". The last car in the line was the "drafting room" where the field notes were computed and plotted on the large-scale maps, some of which were as long as the car.

In the spring of each year the heads of the various colleges are advised of the camp and its purposes and applications are made by interested students for employment during the summer. In recent years there have been as many as three applicants for each position so that it is possible to select those best fitted by their education or



Topography Party

1. W. T. Heminway, Watervliet, N. Y.; 2. J. T. Fish, U. of N. H.; 3. R. T. Barnicle, W. P. I.; 4. P. H. Rousseau, R. P. I.; 5. G. M. Becker, Colgate; 6. C. W. Wirshing, Albany, N. Y.; 7. A. R. GIERARCH, D. & H. R. R.; 8. C. E. R. HAIGHT, D. & H. R. R.; 9. R. L. Dunning, Greenwich, N. Y.; 10. A. F. Van Alstyne, R. P. I.; 11. L. H. Hartung, R. P. I.; 12. R. G. Deitrich, R. P. I.; 13. W. T. Dorrance, Brooklyn P. I.; 14. C. Francis, Cornell; 15. J. McDonald, R. P. I.; 16. H. J. LANGLOIS, D. & H. R. R.; 17. J. S. Kinney, R. P. I.; 18. G. E. Somma, R. P. I.; 19. A. E. Maynard, U. of N. H.; 20. P. P. Topellian, W. P. I.; 21. J. C. Neff, Bloomfield, N. J.; 22. J. M. Ducharme, R. P. I.; 23. H. P. Mills, Jr., Bronxville, N. Y.



Dining Car

experience to perform the work. Engineering students are logical candidates though others have proven very satisfactory.

The organization of the camp is accomplished originally by having each student fill out a questionnaire from which the Engineer-in-Charge can estimate his ability. Each man is then assigned to one of the various groups which will do transit leveling, topography, drafting, or computation work, as the case may be. Assignments to different branches of the work are changed periodically so that an all-around knowledge of the various phases is obtained by each student. The groups are put on a competitive basis, the number of stations reported by each field party being

plotted daily on a bulletin board in the drafting room.

For transporting the field parties from the camp to the points at which they are working, a Model "A" Ford Casey Jones track motor car, with two trailers, is employed.

The 45 students comprising the 1930 camp were enrolled from the following institutions: Brooklyn Polytechnic Institute, Colgate, Cornell, Notre Dame, Pennsylvania State College, Princeton, Rensselaer Polytechnic Institute, Union, University of New Hampshire, University of Pennsylvania, Worcester Polytechnic Institute, Yale (Sheffield Scientific School).



Transit Leveling Party

1. R. A. Gardner, Penn State; 2. P. G. Thomas, U. of P.; 3. A. C. Lendo, W. P. I.; 4. I. E. Johnson, U. of N. H.; 5. M. J. Chase, U. of N. H.; 6. J. T. Fish, U. of N. H.; 7. E. B. Butler, Bogota, N. J.; 8. J. V. Reynolds, Oneonta, N. Y.; 9. T. Hamilton, Jr., Yale (Sheffield); 10. E. Kuhl, R. P. I.; 11. E. S. Coe, W. P. I.; 12. I. Zimelzon, R. P. I.; 13. R. H. Wiley, Union; 14. C. E. Rylander, W. P. I.; 15. J. A. Matusewicz, W. P. I.; 16. J. Greenwood, R. P. I.; 17. A. J. Sharistanian, W. P. I.; 18. L. R. Sawyer, U. of N. H.; 19. D. C. Hilton, R. P. I.; 20. A. C. Klahre, R. P. I.; 21. R. A. Masterson, R. P. I.; 22. L. B. Curtis, Princeton; 23. A. W. Gove, W. P. I.; 24. C. E. R. Haight, D. & H. R. R.; 25. A. R. GIERASCH, D. & H. R. R.; 26. H. J. LANGLOIS, D. & H. R. R.

The Delaware and Hudson Railroad Bulletin

Administration of the camp was under the direction of H. J. LANGLOIS, Engineer-in-Charge, with C. E. R. HAIGHT as Assistant in Field Work, and AIDEN R. GIERASCH as Assistant in Office Work. Details of camp operation were handled by G. CASSELLA, Camp Foreman, JAMES GREEN, Chef, with assistants, L. CASELLA, and G. D'ANNUNZIO. W. H. HARVEY served as Orderly while R. Wadsley "chauffeured" the track motor car.

The accompanying photographs show the healthy state of mind and body produced by two months at the camp. Many of the students return from year to year, finally entering the employ of the railroad permanently after graduation from college.

"Getting the Breaks"

(Continued from page 279)

the indicator oscillates at a certain spot though there is no indication of a flaw on the outer surface of the rail.

So this is why the section gang has been patiently following at a distance of a quarter of a mile or so to the rear! Up they come on signal from the car and in a few minutes the suspected rail is replaced by a new one. When nicked and broken the rail just removed from the track shows a vertical silvery spot the size of a half dollar. This is the transverse fissure which Mr. Sperry so aptly termed "rail cancer" because of its insidious nature. Some are larger than this when found and some are much smaller.

Investigations show that the fissures originate at or near the center of the rail head, gradually enlarging until they reach a size corresponding to more than half the area of the section before the rail actually breaks or shows visible indication of a flaw.

The detector car reveals the presence of other forms of defects in the rails such as horizontal fissures and "pipes" or seams which are directly traceable to the manufacture of the rail. Just how it does it may be of interest to some of our more technically inclined readers though only the briefest and simplest of explanations will be attempted here.

Two brushes or contactors separated by a distance of perhaps three feet are carried on a small carriage which runs along each rail under the car. A low voltage current of about 1000 amperes passes from one to the other of these brushes through the section of rail between them.

Hung on the carriage between the contactors is a pick-up coil. Normally the steady flow of current through the rail does not effect this, but

at the slightest variation, caused by a change in the resistance of the rail, due to joints or flaws, a current is induced in the pick-up coil. This is magnified some 250,000 times by means of amplifiers similar to those used in radio sets, and passed to a series of relays and electro-pneumatic devices which operate the recording pens and the paint spray.

Each of the three pens is actuated by currents of varying intensity, the outer pens moving with only a small flaw while the others indicate an obstruction of considerable size blocking the flow of the energizing current in the rail.

In addition to the operators a conductor, who is responsible for carrying out the dispatcher's orders, two flagmen, and representatives of the Maintenance of Way Department comprise the crew of the car. Progress made depends largely on traffic conditions and the distance between sidings, the cars making 12 to 15 miles a day on our lines.

Rail manufacturers and makers of other forms of steel are installing similar testing devices in their mills in order to check the quality of the output.

Recalls Legend of Revolution

(Continued from page 276)

Delaware and Hudson at Saratoga Springs. For a time he worked as trainman, conductor, and yard man. He later became crossing watchman in which capacity he served until his retirement became effective on December 1, 1929.

During Mr. BENTLEY's term of service he has seen four passenger stations in use at Saratoga Springs. Directly across from the first one was the old roundhouse with one stall and a water tank. (Another roundhouse was later built at Ash Street.) That station was replaced with another which was burned in 1899. While a new station was being built trains arrived and departed from a station located on the Adirondack Railway line a few blocks from the present depot, which was put in service two years later.

Mr. BENTLEY's son, Dr. H. R. BENTLEY, is Company Surgeon at Central Bridge, N. Y., at the present time.

"Oh, John," screamed the excited woman driver, "The car is running away."

"Can't you stop it?" said her worried husband.

"No."

"Well, then, see if you can't hit something cheap."

Clicks from the Rails

Brigham Young Once Railroader

Brigham Young, famous leader of the Mormons, a sect believing that a man should have as many wives as he wished, was once a railroader. This fact came to light recently when a pass made out in his favor was discovered in the files of the Utah Central Railroad, now a part of the Union Pacific, which was built by Young and the Mormon Church. The pass was salvaged from papers which were to be burned, by G. H. Nickerson, Chief Engineer of the Yosemite Valley, who was at that time general roadmaster of the Union Pacific at Salt Lake City, Utah. The pass is made out to "Gov. Brigham Young and Family" for the year 1870 and is signed by Joseph T. Young, Superintendent.

Interesting Collection

Preparing the will of Samuel M. Felton, late Chairman of the Board of the Chicago Great Western, involves the disposal of the most unique collection of locomotive models ever gathered together. It is composed of silver and gold models including one of the locomotive that took Abraham Lincoln to his first inauguration. This was given to Mr. Felton by his father, who is president of the Philadelphia, Wilmington, and Baltimore, now a part of the Pennsylvania, over which the engine ran. Also included in the collection are a number of miniature European locomotives presented to Mr. Felton by the French government, as a recognition of his war-time service.—*Railway Age*.

Some Bull!

One of the most unusual freight shipments ever transported over a railroad was carried by the Pennsylvania from New York to Chicago recently. It was an immense stone bull, once the property of the ruler of Assyria in 1800 B.C., and weighing 20 tons. It rode on a flat car from New York to Chicago to be added to the University of Chicago's Oriental museum. The shipment was so large that it had to be detoured repeatedly, traveling 1,500 extra miles before finally reaching its destination.

Railroads Three Deep

There is believed to be only one spot in the world where three trunk line railroads are built one above the other; it is at the corner of Sixteenth and Dock Streets, in Richmond, Virginia. On the ground level are the Southern Railway's mains. Directly above, and at right angles to the Southern's line, is the Seaboard Air Line's right of way. On the third level, going up, the Chesapeake and Ohio's tracks run parallel with the Southern's, fifty feet in the air.

Two-Storeyed Cars

Probably the only railroad in the world where two-storeyed passenger cars are operated is the suburban steam lines radiating from Paris, France. These cars are not unlike the two-storeyed motor coaches operated in New York and Chicago, except that they are considerably larger. They hold a lot of passengers and make for shorter trains, but, it would seem that the top deck would be a most uncomfortable place to be riding at the time of a derailment.

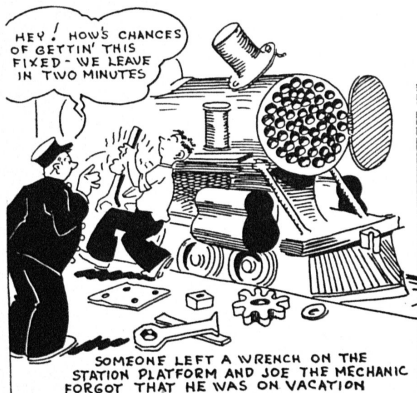
Platform Rent

A German magazine recently published an item concerning a man who collapsed and died just as he was about to step into a train at a Silesian Railway station. His widow applied to the State Railways Administration for a refundment of the money paid for the unused ticket. The railway refunded the money—less ten pfennigs (two cents) charged for her husband's use of the platform.

Dog Buried Three Days

The old story of a cat having nine lives has now been "gone one better" by the story of a poodle dog, "Hobo", mascot of the Norfolk & Western's Bluefield Yard, who lived for three days and nights buried at the bottom of a loaded 70-ton coal car. When rescued, the dog was still able to wag its tail as if to say, in the language of the endurance fliers, the Hunter brothers, "Just give me a bath. You don't know how much you miss one until you've been under a load of coal for three days and nights!"—*Norfolk & Western Magazine*.

Absent Minded Vacationists



COURTESY MUTUAL MAGAZINE

The Noble Man



THE noble sort of man pays special attention to nine points. He is anxious to see clearly, to hear distinctly, to be kindly in his looks, respectful in his demeanor, conscientious in his speech, earnest in his affairs; when in doubt, he is careful to inquire; when in anger, he thinks of the consequences; when offered an opportunity for gain, he thinks only of his duty.

—Kung-tsze (*Confucius*)
(551-478 B. C.)